KRONGAUZ, A.N.

Some urgent problems of dosimetry in clinical radiology. Med.
rad. no.6:78-82 '61.   (MIRA 15:1)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta rent-
genologii i radiologii Ministerstva zdravookhraneniya RSFSR.
                (RADIOLOGY, MEDICAL)

ZOL'NIKOVA, N.I., kand.med.nauk; PERESLEGIN, I.A., kand.med.nauk;
    KRONGAUZ, A.N., kand.tekh.nauk; GOLIKOV, V.Ya., kand.med.nauk

Some hygienic problems in planning radiotherapy departments.
Gig.i san. 26 no.12:18-22 D '61.   (MIRA 15:9)

1. Iz Instituta obshchey i kommunal'noy gigiyeny imeni A.N.
Sysina AMN SSSR, Gosudarstvennogo nauchno-issledovatel'skogo insti-
tuta rentgeno-radiologii Ministerstva zdravookhraneniya RSFSR i
kafedra obshchey gigiyeny I Moskovskogo ordena Lenina meditsinskogo
instituta imeni I.M.Sechenova.
                    (RADIOTHERAPY--HYGIENIC ASPECTS)

FROLOVA, A.V. (Moskva, Leningradskiy prospekt, d.48,kv.49); KRONGAUZ, A.N.;
SHUL'GINA, Z.I.; BOBYLEV, V.G.

Dosimetric investigations of ionization chambers for soft X-ray
irradiation. Vest. rent. i rad. 36 no. 1:49-54 Ja-F '61.
                                              (MIRA 14:4)

1. Iz dozimetricheskogo otdela (zav. - dotsent A.N. Krongauz)
Nauchno-issledovatel'skogo rentgeno-radiologicheskogo instituta
Ministerstva zdravookhraneniya RSFSR (dir. - prof. I.G. Lagunova).
          (IONIZATION CHAMBERS)   (X RAYS)

KRONGAUZ, A.N.

Dosimetric characteristics of radiation therapy of nontumorous
diseases. Med. rad. 7 no.9:17-19 S '62.   (MIRA 17:8)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-
radiologicheskogo instituta Ministerstva zdravookhraneniya
RSFSR.

KRONGAUZ, A.N.

> Some problems of terminology in radiology. Med.rad. no.5:84-
> 86 '62.   (MIRA 15:8)
>
> 1. Iz Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-radio-
> logicheskogo instituta Ministerstva zdravookhraneniya RSFSR.
>   (RADIOLOGY, MEDICAL—TERMINOLOGY)

KRONGAUZ, A. N.

"Bases of medical radiology" by V. I. Feoktisov. Reviewed by
A. N. Krongauz. Med. rad. no.2:94 '62.   (MIRA 15:7)

(RADIOLOGY, MEDICAL)   (FEOKTISOV, V. I.)

KRONGAUZ, A.N.; PARSHIN, I.M.; PROKSH, V.R.; GROMOV, Yu.D.; YAKUNIN, V.F.

Universal condenser dosimeter for roentgen and gamma irradiations. Vest. rent. i rad. 37 no.5:60-63 S.O '62.   (MIRA 17:12)

1. Iz dozimetricheskogo otdela (zaveduyushchiy - dotsent A.N. Krongauz) i eksperimental'nykh masterskikh (direktor I.M. Parshin) Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-radiolo- gicheskogo instituta (direktor - prof. I.G. Lagunova).

KRONGAUZ, A.N.; PAVLOVA, T.G.; FROLOVA, A.V.

Dosimetric characteristics of gammatrin-2. Med.rad.no.1:
12-17'63.   (MIRA 16:10)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-
radiologicheskogo instituta Ministerstva zdravookhraneniya
RSFSR.
        (GAMMA RAYS—EQUIPMENT AND SUPPLIES)
            (RADIATION—DOSAGE)

LINCHEVSKAYA, G.A.; KRONGAUZ, A.N.

Calculation of absorbed doses in radiotherapy with a colloid
solution of radioactive gold. Med. rad. 7 no.12:7-13 D'62.
(MIRA 16:10)

1. Iz otdela klinicheskoy dozimetrii (zav. - dotsent A.N.
Krongauz) Gosudarstvennogo nauchno-issledovatel'skogo rent-
geno-radiologicheskogo instituta Ministerstva zdravookhra-
neniya RSFSR.

KHONGAUZ, A.N.; PETROV, V.A.; LINCHEVSKAYA, G.A.; PALLADIYEVA,
N.M.; MAMIN, R.G., red.; MATVEYEVA, M.M., tekhn. red.

[Measurment and calculation of the absorbed dosages in
internal and external irradiation] Izmerenie i raschet
pogloshchennykh doz pri vneshnem i vnutrennem obluchenii.
Moskva, Medgiz, 1963. 134 p.   (MIRA 17:3)

KRONGAUZ, A.N.; ALIYEV, B.M.

Influence of field dimensions on the effectiveness of the
method of radiation in static distance X-ray and gamma
therapy. Med. rad. 8 no.2:10-12 F'63   (MIRA 16:11)

1. Iz otdela klinicheskoy dozimetrii Nauchno-issledova-
tel'skogo instituta rentgenologii i radiologii Ministerstva
zdravookhraneniya RSFSR i kafedry rentgenologii (zav. - prof.
S.A.Reynberg) TSentral'nogo instituta usovershenstvovaniya
vrachey.

BOCHKAREV, V.V.; KRONGAUZ,A.N.; SOKOLOVA,T.N.; TIMOFEYEV,L.V.

Determination of the dose of radiation from ß-applicators.
Med.rad. 8 no.2:66-73 F'63   (MIRA 16:11)

*

ACCESSION NR: AR4032165   S/0058/64/000/002/A046/A046

SOURCE: Ref. zh. Fiz., Abs. 2A388

AUTHORS: Gurvich, A. M.; Krongauz, A. N.; Lyapidevskiy, V. K.;
Mandel'tsvayg, Yu. B.; Nikiforova, A. P.; Popov, V. I.; Titov, A. A.

TITLE: Comparative dosimetric characteristics of single crystals
of cadmium sulfide

CITED SOURCE: Tr. Vses. n.-i. in-ta med. instrumentov i oborud.,
no. 5, 1962, 40-51

TOPIC TAGS: cadmium sulfide, single crystal cadmium sulfide,
dosimetric characteristics, therapeutic x ray monitoring, radiation
dose power, roentgen ampere characteristic, variation with hardness

TRANSLATION: The dosimetric characteristic of CdS single crystals,
as applied to problems of x-ray therapy, were investigated.   The

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ACCESSION NR: AR4032165

crystals used were grown either (a) by sublimation of luminor CdS by the Grillaud method (Group I) or (b) by sublimation of luminor CdS in a nitrogen jet (Group II). Crystals of the first group were activated with indium or gallium, and those of the second group with Cl or with AgCl, with a small amount of Zn introduced. The investigations were carried out with x-ray equipment RUM-7 ("soft" radiation, tube voltage 20--60 kV maximum) and RUM-3 ("hard" radiation, 100--200 kV maximum). The radiation dose power in air was measured with an ionization dosimeter. The sensitivity of crystals of Group I was 7--264 $\mu A/r/min$, while those of group II occupied an intermediate position. A strictly linear roentgen-ampere characteristic was possessed by the least sensitive crystals. The "variation with hardness" was measured for the investigated crystals and the corresponding theoretical curve calculated. The results of the measurements and of the calculations are in satisfactory agreement in the region of strong absorption. In the region of weak absorption, the experimental "variation with hardness" is lower than the calcu-

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lated value, owing to the inhomogeneity of the employed radiation.
It is concluded that in the limited energy range used in x-ray
therapy (at a generation voltage of 150--200 kV maximum), the inves-
tigated single crystals, particularly those of the first group, can
be used successfully as detectors in clinical x-ray dosimeters. Yu.
Mandel'tsveyg.

DATE ACQ: 31Mar64   SUB CODE: PH, SD   ENCL: 00

Card 3/3

KRONGAUZ, A.N.

Values and units of the measurment of radioactivity and
ionizing radiations. Mod. rad. 8 no.10:98-99 O '63.
                                                (MIRA 17:6)

1. Iz nauchno-issledovatel'skogo rentgeno-radiologicheskogo
instituta Ministerstva zdravookhraneniya RSFSR (direktor -
prof. I.G. Lagunova).

KRONGAUZ, A.N. (Moskva); LYAPIDEVSKIY, V.K. (Moskva); TITOV, A.A. (Moskva)

Sulfide-cadmium dosimeter for X- and gamma-radiation. Trudy TSentr. nauch.-issl. inst. rentg. i rad. 11 no.1:60-71 '64.
(MIRA 18:11)

PROZHANSKIY, S.V.; KhCRGAUZ, A.N.; PRAHOV, Ye...

X-ray doses sustained during preventive fluoroscopic examinations.
Vest. rent. i rad. 39 no.1:54-59 Ja-F '64.

(MIRA 18:2)

1. Orgmetodotdel (zav. - prof. I.M. Yakhnich) i otdel klinicheskoy
dozimetrii (zav. - dotsent A.N. Krongauz) Gosudarstvennogo nauchno-
issledovatel'skogo rentgeno-radiologicheskogo instituta Ministerstva
zdravookhraneniya RSFSR, Moskva.

KRONGAUZ, A.N.; FROLOVA, A.V.

Use of long-wave X-ray irradiation in dermatology. Vest. derm. i ven
38 no.6:66-68 Je '64.   (MIRA 18:6)

1. Otdel klinicheskoy dozimetrii Nauchno-issledovatel'skogo rentgeno-
radiologicheskogo Instituta (dir. - prof. I.G.Lagunova), Moskva.

KRONGAUZ, A.N.; FROLOVA, A.V.

Method of calculating the absorbed doses of long-wave X-ray
radiation. Vest. rent. i rad. 37 no.4:40-46 Jl-Ag '62.
(MIRA 18:6)

1. Nauchno-issledovatel'skiy rentgeno-radiologicheskiy institut
Ministerstva zdravookhraneniya RSFSR, Moskva.

KHOKHLUZ, A.N.; SHAGIMARDANOV, N.Sh.

Ruler for the determination of relative leap doses and selection of conditions for irradiation by large focus skin distance γ-units.
Med. ra1. 10 no.7:83-86 Jl '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy rentgeno-radiologicheskiy institut i Nauchno-issledovatel'skiy institut s hornogo mashinostroyeniya, Moskva.

Lead, D., Ads. (German)

Auxiliary protective devices in diagnostic X-ray apparatuses.
Vest. rent. i radi. 30 no.2:54-56 Mr-Ap '65.

(MIRA 18:6)

PHASE I BOOK EXPLOITATION   SOV/4657

Chekmarev, A. I., M. L. Mikhel', I. A. Krongauz, and Ye. M. Vitenberg

Tara dlya khimicheskikh produktov (Containers for Chemical Products)
    Moscow, Nauchno-issl. in-t tekhniko-ekon. issled., 1960. 230 p.
    2,000 copies printed.

Sponsoring Agency: Gosudarstvennyy komitet Soveta Ministrov SSSR po khimii.

Eds: I. A. Krongauz; S. I. Babushkina, and L. I. Khoras.

PURPOSE: This book is intended as a guide for all engineering, technical,
    and planning workers concerned with the packing and shipping of chemical
    products.

COVERAGE: The book discusses the design, manufacture, and utilization of
    all types of containers for chemical products. It includes technical
    data of a nature to permit the proper choice of a container in a given
    situation. New types of containers developed in the Soviet Union, as
    well as foreign experience, are described. The letter designations for

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Containers for Chemical Products

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all such containers are listed. No personalities are mentioned.
There are 50 references: 20 Soviet, 19 English, and 11 German.

TABLE OF CONTENTS:

Card 2/5

CHERSKOV, A.S., veterinarnyy vrach; POZDNYAKOV, A.G., veterinarnyy vrach; KRONGAUZ, K.A., veterinarnyy vrach

Specific prophylaxis in swine plague. Veterinariia 37 no.6: 31-33 Je '60.   (MIRA 16:7)

(Swine plague)

REVYAKIN, K. A., CHERGKOV, A. S. and POZDNYAKOV, A. G.

"About specific prophylaxis of hog cholera."

Veterinariya, Vol. 37, No. 6, 1960, p. 31

Vet. Dr.

AGRE, V.L.; AL'DIYEVA, K.N.; ANANYAN, V.V.; BERLIN, R.I. [deceased];
ISTOMIN, A.V.; KAGAN, I.A.; KRONGAUZ, N.D.; KULAKOV, A.M.;
MARKOV, V.P.; MATVEYEV, Yu.M.; NESVETAYEV, A.M.; OSIPOV, A.P.
[deceased]; POZIN, M.S.; FAYNSHTEYN, V.M.; SHAPIRO, B.S.;
SHEVCHENKO, N.A.; SHCHIRIN, V.N.; AL'SHEVSKIY, L.Ye., kand.
tekhn.nauk, red.; VLADIMIROV, Yu.V., red.izd-va; MIKHAYLOVA,
V.V., tekhn.red.

[Rolling and pipe mills] Prokatnoe i trubnoe proizvodstvo.
Pod red. L.E.Al'shevskogo i A.V.Istomina. Moskva, Gos.nauchno-
tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1962.
246 p.
(MIRA 15:2)

1. Moscow. TSentral'nyy institut informatsii chernoy metallurgii.
   (Rolling mills)   (Pipe mills)

KRONGAUZ, N.N.

Conveyers in the production of quilted linings. Leg.prom. 15 [i.e.16]
no.3:19-21 Mr '56.
(MIRA 9:7)

1.Glavnyy inzhener Kiyevskoy shveynoy fabriki "Ukraina".
(Coats) (Garment cutting)

KRONGAUZ, N.N., red.; SKORODUMOVA, N.I., starshiy nauchnyy sotr.;
SHIMELIOVICH, Yu.B., red.; POTOPOVA, N.L., tekhn. red.

[Collection of reports of the Scientific Research Conference of
Workers of the Clothing Industry of the Ukrainian S.S.R.] Sbor-
nik dokladov Nauchno-tekhnicheskoi konferentsii rabotnikov
shveinoi promyshlennosti Ukrainskoi SSR, Kiev, 1959. Moskva,
TSentr.in-t nauchno-tekhn.informatsii legkoi promyshl., 1961. 18 p.
                                        (MIRA 14:12)
1. Nauchno-tekhnicheskaya konferentsiya rabotnikov shveynoy pro-
myshlennosti Ukrainskoy SSR, Kiev, 1959.
            (Ukraine--Clothing industry)

KRONGAUZ, N.N. (Kiyev)

Efficiency promoters struggle for the modernization and better utilization of equipment. Shvein.prom. no.2:34-35 Mr-Ap '61.

(Kiev Economic Region—Clothing industry—Equipment and supplies) (MIRA 14:4)

KRONGAUZ, N.N.

Kiev's clothing workers struggle to improve the quality of clothing. Shvein.prom. no.3:16-18 My-Je '62.   (MIRA 15:6)
(Kiev—Clothing industry)

KRONGAUZ, N.N.

Some problems in the organization of continuous production
lines in clothing factories. Shvein. prom. no.1:31-33
Ja-F '63.
                                              (MIRA 16:4)

(Clothing industry)
(Assembly-line methods)

KRONGAUZ, N.N. [Kronhauz, N.N.]

Mechanization of steaming and pressing operations. Leh.prom.
no.1:14-19 Ja-Mr '63.
(MIRA 16:4)

1. Trest shveynoy promyshlennosti Kiyevskogo soveta narodnogo
khozyaystva.

Comm.-Tech. Col.

Dissertation : "Efficient systems of supplying industrial establishments with heat from Central Boiler Rooms." 29 Oct 49

Moscow Order of the Labor Red Banner Engineering Construction Inst imeni

V. V. Kuybyshov

SO Vecheryaya Moskva
Sum 71

KRONGAUZ, S. D.

"Efficient Systems of Supplying Industrial Establishments
with Heat From Central Boiler Rooms." Thesis for degree of
Cand. Technical Sci. Sub 29 Oct 49, Moscow Order of the
Labor Red Banner Engineering Construction Inst. imeni
V. V. Kuybyshev

Summary S2, 18 Dec 52, Dissertations Presented for Degrees
in Science and Engineering in Moscow in 1949. From
Vechernyaya Moskva. Jan-Dec 1949.

KRONGAUZ, S. D.   PA 161766

USSR/Engineering - Heat   Jun 50
                    Boiler Systems

"Problem of Selecting a System for Supplying
Heat to an Industrial Enterprise From a Cen-
tral Boiler Room," S. D. Krongauz, Cand Tech
Sci, $3\frac{1}{2}$ pp

"Prom Energet" No 6

Describes four systems, giving line diagrams
and noting advantages and disadvantages of
each. Concludes choice must be determined in
each case by individual requirements.

                                               161766

F

P

(493).   METHOD OF DETERMINING HEATING CAPACITY OF CENTRAL AIR SYSTEM
OF HEATING AND VENTILATION.   Kronauer, S.   (Za Ekono. Topliva (Fuel
Econ.), June 1951, 2c-31).   A method of calculation is described, with
examples.   (L).

F

6319.   CONSTRUCTION AND OPERATION OF SYSTEMS FOR SUPPLY OF HEAT IN
INDUSTRIAL PLANTS.   Kroning, S.D.   (Za Ekon. Topliva (Fuel Econ.), Feb.
1932, 22-25).   The argument is presented for not using heat supplied in
bulk from a heat-and-power station for occasional heating loads, which may be
taken more economically by gas, oil, steam or electric heating.   (L).

KRONGAUZ, S. D.

Factories--Heating and Ventilation

Problems of building and operating heating systems for industrial enterprises. Za ekon.
top., No. 2, 1952

Monthly List of Russian Accessions, Library of Congress, March 1952. Unclassified.

KRONGAUZ, S. D.

Heat Engineering

Method of determining the parameters of heat supply systems for industrial buildings.
Za ekon. top., 9, no. 7, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952, UNCLASSIFIED.

KRONGAUZ, S.D.

1

Electrical Engineering Abst.
Vol. 57 No₄ 675
Mar. 1954
Mechanical and Civil Engineering
Technology

697.3

1341.   Economy of thermal and electric energy in
heating and heat supply systems in industrial buildings.
S. D. Krongauz. *Elekt. Stantsii*, 1953, No. 7, 9-14.
In Russian.

Use of heat from power stations or boilers in
industrial buildings should be allowed for heating
only when the heat from manufacturing processes is
insufficient to maintain the temperature at the desired
level. The relationship between the consumption of
heat and water v. amount of heat from manufacturing
processes should be determined by tests for various
buildings or groups of buildings. Heating and
ventilation design should incorporate use of local heat
and water-control devices.   J. LUKASZEWICZ

KRONGAUZ, S., kandidat tekhnicheskikh nauk.

All-purpose continuous operation hardening chamber for precast reinforced concrete plants. Stroi.mat.,izdel.i konstr. 1 no.11: 7-11 N '55.
(MLRA 9:5)

1. Zaveduyushchiy teplotekhnicheskoy laboratoriey Vsesoyuznogo nauchno-issledovatel'skogo instituta zhelezobetona.
(Concrete plants)

Krongauz, S. D.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates.
                           Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5322

    Author: Krongauz, S. D.

Institution: None

     Title: Improvement of Heat and Moisture Treatment of Concrete and Reduction
             of Steam Expenditure in the Chambers

  Original
Publication: Beton i zhelezobeton, 1956, No 7, 242-244

  Abstract: It is recommended to install throttle diaphragms at the sites of live
             steam application. The presence of diaphragms increases by several
             times the resistance of steam injection into the chamber, as compared
             with the rated resistance of steam distribution system, which results
             in a better regulation of the heat supply system and a minimal dif-
             ference between the actual and the rated inflow of steam into the
             chamber. According to the experimental data steam expenditure on
             steaming hollow articles can be decreased to 70 kg/m^3 of solid con-
             crete.

Card 1/1

KROENGAUZ, S.D., kand.tekhn.nauk.

Improving the utilization of heat in factories and construction
yards producing plain and reinforced concrete products. Prom.energ.
12 no.10:14-18 O '57.   (MIRA 10:10)
                    (Reinforced concrete)   (Concrete plants)

KRONGAUZ, Samuil Davydovich, kand. tekhn. nauk; LYKOV, M.V., kand. tekhn. nauk, nauchnyy red.; SHPAYER, A.L., red. izd-va; TEMKINA, Ye.L., tekhn. red.

[Heat treatment and heat supply at precast reinforced-concrete plants] Teplovaia obrabotka i teplosnabzhenie na zavodakh sbornogo zhelezobetona; teoreticheskie osnovy i praktika. Moskva, Gos. izd-vo lit-ry po stroit. i arkhit. i stroit. materialam, 1961.
270 p.   (MIRA 15:1)
            (Autoclaves)

MIRONOV, S.A., doktor tekhn. nauk, prof.; MALININA, L.A., kand. tekhn.
nauk; FEDOROV, V.A., inzh.; KAYSER, L.A., inzh.; KRONGAUZ, S.D.,
kand. tekhn. nauk; PANFILOVA, L.I., kand. tekhn. nauk; SEMENOV,
L.A., doktor tekhn. nauk, prof.; PODUROVSKIY, N.I., kand. tekhn.
nauk; VINNITSKIY, A.M., kand. tekhn. nauk; KLIMOVA, G.D., red.
izd-va; SHEVCHENKO, T.N., tekhn. red.

[Instructions on curing concrete and reinforced concrete products
at plants and building sites]Instruktsiia po proparivaniiu beton-
nykh i zhelezobetonnykh izdelii na zavodakh i poligonakh. Mo-
skva, Gosstroiizdat, 1962.   33 p.   (MIRA 15:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut betona
i zhelezobetona,Perovo. 2. Chlen-korrespondent Akademii stroitel'-
stva i arkhitektury SSSR (for Mironov).
   (Precast concrete--Curing) (Autoclaves)

KRONCAUZ, S. R.

Planirovanie i finansirocanie kapieal'nykh vlozhenii v ugol'noi promy-
shlennosti. "oskva, Ugletekhizdat, 1947.

Title translated: Planning and financing of capital investments in the
coal industry.

KRONGAUZ, V. A.

in collection of articles (Cont.) on Inorganic and Organic Systems, Moscow, Izd-vo
Effect of Ionizing Radiation
AN SSSR, 1959,, 416 (root works a collection of Sb rabot po rel'c. Khim, 1955)
There are 7 figures and 10 references of which 3 are Soviet,
6 English, and 1 German.

PART 3. REACTIONS OF ORGANIC SUBSTANCES

Krongauz, V.A., Bagdasar'yan, Kh.S. Energy Transfer in the Radiolysis of   205
Benzoyl Peroxide Solutions

This paper considers the radiolysis of benzoyl peroxide solutions in
benzene, cyclohexane, and ethyl acetate. In the benzene solution of
peroxide, the transfer of excitation energy is from the solvent to
the solute. This effect was not detected in cyclohexane or ethyl acetate
solutions, in which the radiation decomposition of peroxide shows a chain
mechanism. The authors determined yields of radicals for the solvents and
the peroxide. Small additions of anthracene and phenanthrene to benzene
inhibit the decomposition of peroxide. There are 7 figures, 4 tables, and
15 references of which 2 are Soviet, 11 English, and 2 German.

Card 17/31

KRONGAUZ, V. A. Cand Chem Soi -- (diss) x "Intermolecular transfer of excitation energy during radiolysis of solutions of organic matter." Mos, 1957. 7 pp (Min of Chem Industry USSR. Order of Labor Red Banner Soi Res Phys-Chem Inst im L. Ya. Karpov), 120 copies (KL, 42-57, 91)

-7-

AUTHORS: Krongauz, V. A., Bagdasar'yan, Kh. S.   20-114-4-41/63

TITLE: Energy Transfer on the Occasion of the Radiolysis of Benzoyl
              Peroxide Solutions (Peredacha energii pri radiolize rastvorov
              perekisi benzoila)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4,
              pp. 829-832 (USSR)

ABSTRACT: Under the influence of ionizing radiation upon organic
              solutions the primarily absorbed energy may be transferred
              from one component to another. In order to determine the
              influence which the quality of the solvent exerts upon the
              energy transfer, the authors studied the radiolysis of
              benzoyl peroxide solutions in benzol, cyclohexane and ethyl-
              acetate. The radiolysis was carried out by γ-rays Co^{60} in the
              absence of air. The initial velocity of the peroxide
              decomposition was measured iodometrically. Its decomposed
              amount did not exceed 10-20% of its initial concentration.
              Figure 1 shows the dependence of the initial velocity of the
              radiolysis on the initial concentration. The benzoylperoxide
              absorbs part of the total energy absorbed by the solution,
Card 1/4   this part corresponding to the electron share of the peroxide

Energy Transfer on the Occasion of the Radiolysis of Benzoyl 20-114-4-41/63
Peroxide Solutions

in the solution. The computed number of molecules of peroxide,
which decompose under the given circumstances, is 1760. This
value represents a twenty-fold number of molecules which
would decompose, if the amount of energy absorbed by the
peroxide had been used for breaking up the linkage --O--O--.
To clarify the reasons which cause a high yield of radiation
at the decomposition of the benzoylperoxide, the authors made
tests with diphenylpicrylhydrazyl (henceforth called DPhPH),
in order to determine the yield of free radicals from benzol,
as well as from benzol solutions of benzoylperoxide. The
alteration of the DPhPH concentration was measured spectro-
photometrically. The critical concentration, which is necessary
for the determination of all free radicals obtained from
radiolysis, is 1.10^{-4} mol/liter. The yield of free radicals
at the radiolysis of pure benzol determined by the authors,
is in accordance with the data of other authors. As the
formation velocity of the free radicals in pure benzol is
considerably less than the   decomposition velocity of the
peroxide, the high radiation yield cannot be explained by
an interaction of the latter with those radicals. The radio-

Card 2/4   lysis of the peroxide does not take place according to a chain

Energy Transfer on the Occasion of the Radiolysis of Benzoyl 20-114-4-41/63
Peroxide Solutions

mechanism. One may assume that the high radiation yield in the
radiolytic decomposition of the peroxide is due to the energy
transfer of primarily produced benzol molecules upon the
peroxide molecules. A comparison of the results obtained from
radiolyses of benzoylperoxide in different solvents shows that
the energy transfer from the solvent upon the solved substance
is dependent on the quality of the solvent. The individual
stages of the radiolysis are as follows: 1) Formation of
excited benzol molecules at the absorption of the radiation
energy, 2) a spontaneous disactivation of the same molecules.
3) energy transfer of the excited benzol molecules upon the
peroxide and the decomposition of the latter, and 4) decompo-
sition of the peroxide by absorption of the γ-rays by the
peroxide itself.
There are 4 figures and 12 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im.
L. Ya. Karpova (Scientific Research Institute for Physical
Chemistry imeni L. Ya. Karpov)

Card 3/4

Energy Transfer on the Occasion of the Radiolysis of Benzoyl 20-114-4-41/63
Peroxide Solutions

PRESENTED: December 30, 1956, by V. A. Kargin, Member, Academy of
              Sciences, USSR

SUBMITTED: December 27, 1957

Card 4/4

KRONGAUZ, V. A.

AUTHORS: Krongauz, V. A., Bagdasar'yan, Kh. S.   20-5-27/48

TITLE: Radiation Chemical Effect of Excitation Energy Transfer
              in Three-Component Solutions (Radiatsionnokhimicheskiy effekt
              perekhoda energii vozbuzhdeniya v trekhkomponentnykh
              rastvorakh).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 5, pp. 817-819 (USSR).

ABSTRACT: The authors showed already in preliminary works (reference
              1-2) that with the radiolysis of solutions of benzene-super-
              oxide in benzene the primary absorbed energy is transfered
              from the excited benzene molecules to the molecules of
              superoxide. In order to closer study the mechanism of energy
              transfer of the radiolysis of the three-component benzene +
              phenantrene + benzoyl-superoxide, the present work
              investigates the kinetics of the radiolytic decomposition
              of benzoyl-superoxide of these compounds within a wide range
              of phenantrene concentrations. (0 - 1 mol/l) with three
              different concentrations of benzoyl-superoxide (0,0125 ;
              0,0083 ; 0,0042 mol/l). The radiolysis of the solutions was
              carried out under the influence of γ - rays of Co^{60} with

Card 1/3

Radiation Chemical Effect of Excitation Energy Transfer   20-5-27/48
·in Three-Component Solutions.

no air present. The differential dose was $1,5.10^{15}$ eV/ml.sec.
A diagram shows the dependence of the initial velocity of
the radiolysis of benzoyl-superoxide on the concentration
of phenantrene for three concentrations of superoxide. With
increasing concentration the velocity of radiolysis
decreases at first, passes a minimum and then increases
linearly. The authors study seven processes occuring with
the radiolysis of the compounds investigated. They take the
following simplified conditions as basis: As the concentra-
tion of benzoyl-superoxide in the solution is small the
decomposition of the superoxide by direct influence of
radiation can be neglected. The decomposition of the
excited molecules of benzene and phenantrene to their
radicals is not taken into account because of the small
yield of radiation of the radicals of these hydrocarbons.
The excited phenantrene molecules obtained by means of two
certain (mentioned) reactions are kinetically identical. A
formula is given for the velocity of the radiolytic
decomposition of benzoyl-superoxide and it is specialized
for sufficiently great concentrations of phenantrene. In the
Card 2/3   end the authors still estimate the mean life of the

Radiation Chemical Effect of Excitation Energy   20-5-27/48
Transfer in Three-Component Solutions.

excited phenantrene molecules (which transfer their energy
to benzoyl-superoxide) and find the value $\mathcal{J} \sim 10^{-7}$ sec.
Finally they shortly report on analogous results of other
authors. There are 2 figures, and 7 references, 5 of which
are Slavic.

ASSOCIATION: Physical-Chemical Institute imeni L. Ya. Karpov (Fiziko-
khimicheskiy institut im. L. Ya. Karpova).

PRESENTED: April 25, 1957, by N. N. Semenov. Academician

SUBMITTED: April 25, 1957.

AVAILABLE: Library of Congress

Card 3/3

AUTHORS: Krongauz, V. A., Bagdasar'yan,Kh. S.   76-32-3-36/43.

TITLE: The Radiolysis of Solutions of Tertiary Butyl Peroxide
             (Radioliz rastvorov perekisi tretichnogo butila)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol 32, Nr 3,
             p   717   (USSR)

ABSTRACT: It had already been shown earlier that upon γ-radiation
             of benzoyl solutions (in benzene),a transition of the
             primarily absorbed energy   excited benzene molecules
             to the molecules of peroxide,takes place. It is interesting
             to find out whether the taking up of energy of benzoyl
             peroxide is to be traced back to the presence of the weak
             peroxide bond or to the aromatic molecular structure of
             peroxide. In order to verify the assumption that the former
             is not the cause, the investigations in benzene and cyclo-
             hexane solutions mentioned in the title were performed. The
             concentrations of the solutions were 0.02 -0.5 mol/1; the
             γ-radiation was obtained by Co^{60}. From the small yield
             of the radiation energy of tert-butyl peroxide in benzene
             and cyclohexane, can be concluded that no energy transfer

Card 1/2

76-32-3-36/43

The Radiolysis of Solutions of Tertiary Butyl Peroxide

from the solvent to peroxide takes place. In connection
with the earlier observations, it can be maintained that
especially effective transfers of excitation energy only
take place in cases where both solution components possess
an aromatic structure. Individual data of concentrations, as
well as energetic quantities and measurements are given.
There are 3 references, 1 of which is Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova,Moskva
               (Moscow, Physics and Chemistry Institute imeni L. Ya. Karpov)

SUBMITTED: February 21, 1957

Card 2/2

AUTHORS: Krongauz, V. A., Bagdasar'yan, Kh. S.   SOV/76-32-8-22/37

TITLE: The Investigation of the Radiochemical Effect of the Excitation
             Energy Transfer in Binary Systems by Means of the Polymerization
             Method (Issledovaniya radiatsionno-khimicheskogo effekta
             perekhoda energii vozbuzhdeniya v dvukhkomponentnykh sistemakh
             metodom polimerizatsii)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 8, pp. 1863-1868
             (USSR)

ABSTRACT: Continuing earlier papers the investigation mentioned above was
             carried out to further explain the corresponding problems; the
             authors investigated the radiation polymerization of styrene
             alone as well as together with methyl methacrylate in the pre-
             sence of benzoyl peroxide and the dinitrile of azoiso fatty
             acid. The polymerization was carried out under the influence of
             γ-rays of Co^{60} at 30,2°C in the dilatometer described already.
             The experimental results show that the addition of 0,01 mole/l
             of the peroxide to styrene increases its polymerization rate
             by a factor of three, i. e. the formation rate of the radicals
Card 1/3   (initiating the polymerization) is increased by a factor of nine.

SOV/76-32-8-22/37

The Investigation of the Radiochemical Effect of the Excitation Energy
Transfer in Binary Systems by Means of the Polymerization Method

In the case of an addition of dinitrile no energy transfer from
the solvent to the dissolved substance was found. This is (as
in earlier papers) explained by the fact that the nitrile does
not contain an aromatic ring (like the peroxide), as the role
of the energy acceptor is dependent on the aromatic structure.
In connection with the observations made by T. S. Nikitina
and Kh. S. Bagdasar'yan (Ref 6) the time course of the common
radiation polymerization of styrene and methyl methacrylate is
investigated. An addition of styrene considerably decreases the
polymerization rate. The starting rate is calculated according
to an equation by Melville (Melvil) (Ref 12). A difference
between the data obtained and those by Nikitin and Bagdasar'yan
is explained by a difference between the methods employed. An
agreement of the data obtained with those by Walling (Uoling)
(Ref 9) is found. Finally the authors express their gratitude
to S. S. Medvedev, Member, Academy of Sciences, USSR.
There are 4 figures and 18 references, 5 of which are Soviet.

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SOV/76-32-8-22/37

The Investigation of the Radiochemical Effect of the Excitation Energy
Transfer in Binary Systems by Means of the Polymerization Method

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova,Moskva
                (Physical and Chemical Institute imeni L. Ya. Karpov, Moscow)

SUBMITTED: March 23, 1957

Card 3/3

5(4), 21(8)   SOV/20-127-5-32/58
AUTHORS: Krongauz, V. A., Bagdasar'yan, Kh. S.

TITLE: The Transfer of Excitation Energy and the Sensitization of
                Chemical Reactions in the Radiolysis of Solutions of Aromatic
                Azocompounds

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 5, pp 1047-1050
                (USSR)

ABSTRACT: In preceding papers (Refs 1,2) the authors investigated the
                radiolysis of benzoyl peroxide dissolved in benzene, and found
                a considerable sensitization to occur. The decay rate of benzoyl
                peroxide was twenty times as high as corresponded to the direct
                action of the radiation. It was concluded herefrom that the
                solvent transfers energy on to the dissolved substance. Accord-
                ing to reference 6, small additions of phenanthrene and
                anthracene decrease the velocity of the radiolysis, because
                (Ref 7), they are also energy acceptors. For the purpose of in-
                vestigating the influence of the structure of the dissolved
                substance on the energy transfer, the radiolysis of the follow-
                ing aromatic azocompounds was carried out: Phenylazotriphenyl
Card 1/3   methane (PhATM), diazoaminobenzene, benzylphenyl triazene, and methyl-

The Transfer of Excitation Energy and the Sensitization of Chemical Reactions in the Radiolysis of Solutions of Aromatic Azocompounds

phenyl triazene. Radiolysis was carried out by means of γ-rays of Co^{60} in solutions from which air had been carefully removed. The primary yield of decay products per 100 ev of absorbed energy was determined. Figure 1 shows the course taken by the radiolysis of PhATM. The yield in decay products increases rapidly up to a PhATM concentration of 0.01 mol/l, after which it becomes linear. This course, which proves a more intense decay of PhATM than would correspond to radiation, confirms the opinion that benzene transfers its excitation energy to PhATM. The radiolysis of benzoyl peroxide is considerably hampered by the addition of PhATM, which is proof of the fact that the latter is just as active an energy acceptor as benzoyl peroxide. DAB, BPhT, and MPhT do not decay with noticeable velocity under the action of γ-rays (Table 1). In the case of azobenzene a transisomerization which increases linearly with irradiation (Fig 2) occurs during irradiation. The results obtained prove that, between the structure of the molecule and its ability of taking up the energy of electron excitation and utilizing it for the carrying out of chemical reactions, there is no direct connection. There are 2 figures, 2 tables, and

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SOV/20-127-5-32/58

The Transfer of Excitation Energy and the Sensitization of Chemical Reactions in the Radiolysis of Solutions of Aromatic Azocompounds

13 references, 8 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Scientific Research Institute imeni L. Ya. Karpov)

PRESENTED: April 15, 1959 by S. S. Medvedev, Academician

SUBMITTED: April 11, 1959

Card 3/3

S/020/60/132/05/45/069
B004/B011

$5.4500(B)$

AUTHORS: Krongauz, V. A., Bagdasar'yan, Kh. S.

TITLE: Excitation Energy Transfer and Sensitization of Chemical
             Reactions in the Radiolysis of Organic Disulfide Solutions

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 5,
             pp. 1136-1139

TEXT: The authors found in previous investigations (Refs. 1, 2) that
highly reactive substances in benzene solution gave a higher radiation
yield than corresponded to the direct action of radiation, and therefore
they concluded upon a transfer of excitation energy by benzene. Here,
these investigations are continued for diphenyl disulfide, dibenzyl
disulfide, and dibenzoyl disulfide. To prevent the radicals from recombin-
ing, diphenyl picryl hydrazyl was added. Radiolysis was carried out by
means of gamma radiation of Co^{60}. The radiation yield per 100 ev was
determined by measuring the reduction in concentration of diphenyl
picryl hydrazyl with the aid of an $C\phi$-4 (SF-4) spectrophotometer. Fig. 1
shows the experimental results which confirm the energy transfer. Fig. 2

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Excitation Energy Transfer and Sensitization   S/020/60/132/05/45/069
of Chemical Reactions in the Radiolysis of   B004/B011
Organic Disulfide Solutions

illustrates the linear dependence of the disulfide decomposition on
concentration. Equation (1) is written down for the quantity of the
resulting decomposition products, taking account of the following con-
stants: k_1 - rate of formation of excited benzene molecules, k_2 - rate
of their de-activation, k_3' rate of energy transfer, k_4' and k_5' rate of
de-activation and dissociation of excited disulfide molecules. Table 1
specifies the values for k_3'/k_2 and $k_1 k_5'/(k_4' + k_5')$. At least 2 excited
benzene molecules are formed every 100 ev. The CH_2 group does not
prevent the energy from migrating to the S-S group, as is confirmed by
equal values for diethyl disulfide and dioctyl disulfide. Furthermore,
the authors studied the action of the benzoyl peroxide addition. As is
shown in Fig. 3, the decomposition of benzoyl peroxide decreases with
rising disulfide concentration, with the dibenzoyl disulfide exerting a
stronger protective action. Fig. 4 shows that there is no linear depend-
ence of the resulting decomposition products on concentration but a
dependence according to equation (3). The strong protective action of

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Excitation Energy Transfer and Sensitization   S/020/60/132/05/45/069
of Chemical Reactions in the Radiolysis of   B004/B011
Organic Disulfide Solutions

dibenzoyl disulfide is not clarified as yet. A. N. Silant'yeva assisted
in the experiments. The authors thank V. N. Vasil'yeva for supplying the
disulfide materials. There are 4 figures, 1 table, and 6 references:
4 Soviet, 1 British, and 1 American.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
             (Physicochemical Institute imeni L. Ya. Karpov)

PRESENTED: February 6, 1960, by S.S. Medvedev, Academician

SUBMITTED: February 6, 1960

Card 3/3

RECOGNITUL, V.A.

report to be submitted for the 17th 21st Conference and 19th Intl. Congress of Pure and Applied Chemistry, Montreal, Canada, 2-12 August 1961

ALIMARIN, I. P., and ZOLOTOV, Yu. A., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR - "Extraction of metal chelate compounds (as affected by the nature of the solvent)" (to be presented in Russian) (Section C.2 - 11 Aug 61, morning)

BAGDASAR'YAN, Kh. S., and ..., ..., ..., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, MINKHP - "Some aspects of energy transfer in radiation chemistry" (Section A.1, Session II - 7 Aug 61, morning)

BELOMESOV, Yu. A., Institute of General and Inorganic Chemistry, Academy of Sciences USSR, Kiev - "The kinetics of the electrode process in the electrolysis of melted salts" (Section B.1 - 10 Aug 61, morning)

BELOMESOV, Yu. A., ACERIN, V. S., BOJIN, E. M. (Polesskiy VNDs, E. M.) Chemistry, Academy of Sciences USSR, Kiev - "On the convection with melted borate and phosphate" (Section A.3, c, (2), Session I - 11 Aug 61, morning)

BELOMESOV, G. D., and SHESHINA, G. V., Institute of General and Inorganic Chemistry, Academy of Sciences USSR, Kiev - "On the convection diffusion in melted salts" (Section B.3 - 9 Aug 61, afternoon)

GERASIMOV, Ya. I. Moscow State University imeni M. V. Lomonosov, (Co-Chairman, Section A.1, c.(2), Session I(B)), 11 Aug 61, afternoon)

GERASIMOV, Ya. I. (ATROSHCHENKO, V. I., and NIKOLAYEV, P. A., and REZNIKOV, I. R., Moscow State University imeni M. V. Lomonosov - "The thermodynamic properties of columbium and cerium oxides" (Section A.3, c.(2), Session II(A), 11 Aug 61, morning)

GOL'DANSKIY, V. I., Institute of Chemical Physics, Academy of Sciences USSR - "Gamma-ray radioactivity - a new kind of radioactive decay of nuclei" (Section A.4 - 7 Aug 61, morning)

5.4600

AUTHORS: Bagdasar'yan, Kh. S., Izrailevich, N. S., and Krongauz, V. A.

TITLE: Intramolecular transfer of energy by radiolysis of alkyl benzenes

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 4, 1961, 887 - 890

TEXT: The authors tried (1) to check the data by R. Schuler et al. (Ref. 5. see below) on the protective action of the phenyl ring in radiolysis; (2) to obtain additional data on this protective action. The yields of primary radicals in the γ-radiolysis of toluene, ethyl benzene, cumene, n-butyl benzene, n-octyl benzene, equimolecular mixtures of octane and benzene, and (for comparison) the radical yields of benzene, n-hexane, and n-octane were measured. The spectrophotometrically measured iodine concentration was $5 \cdot 10^{-4} - 5 \cdot 10^{-3}$ M. It did not affect the radical yield. By repeatedly freezing up the substances in the vacuum, air was removed. Co^{60} served as irradiation source. The dose measured by an $FeSO_4$ dosimeter was $1.9 \cdot 10^{18}$ ev/liter·sec. The data are given in Table 1 and compared with R. Schuler's.

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Intramolecular transfer of energy ..

30305
S/020/61/141/004/011/019
B101/B110

The additive yield was calculated from the equation $G_{add} = \mathcal{E}_A G_A + \mathcal{E}_{Ph} G_{Ph}$. Here, $\mathcal{E}_A$, $\mathcal{E}_{Ph}$ are the electronic fractions of the aliphatic chain and the aromatic ring, respectively; G_A, G_{Ph} are the radical yields of alkanes and benzene, respectively. The remarkably low yield for toluene was checked several times by means of samples purified by various methods. The values found deviated only slightly from the data given in Table 1. Comparison of the data for octyl benzene and octane + benzene (1:1) permits the conclusion that the intramolecular transfer of energy in octyl benzene is more effective than the intramolecular energy transfer from the aliphatic chain of a molecule to the phenyl ring of another molecule. For the radical yield, the following is derived:

$G_{add} - G = \mathcal{E}_A \left[\Theta/(1 + \Theta)\right] (G_A - a_A G_{Ph}/a_{Ph})$ (4), where

$\Theta = (k_M + k_{APh} |Ph|)/(k_{\bar{A}} + k_A)$ (5). $k_{\bar{A}}$ and k_{Ph} are the constants of the rate of formation of radicals from the corresponding excited molecules or groups; k_A is the deactivation constant; k_{APh} the constant of velocity of intermolecular energy transfer from the aliphatic chain to the phenyl ring;

Card 2/5 4

Intramolecular transfer of energy...

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S/020/61/141/004/011/019
B101/B110

[Ph] is the concentration of the phenyl rings; k_M the constant of velocity of intramolecular energy transfer from the aliphatic chain to the phenyl ring; a_A, a_{Ph} are the factors of proportionality, i. e., the yields of excited molecules per unit of absorbed energy. $G_{add} - G$ was found to be a linear function of ε_A. The straight line passes through the origin of coordinates. Therefrom, it follows that $\theta/(1 + \theta)$ is approximately constant. An evaluation of the ratio a_A/a_{Ph} confirms that the intra-molecular transfer of energy in octyl benzene takes place more probably than the intermolecular energy transfer from aliphatic chains to phenyl rings. The statements by P. Avivi, A. Weinreb (see below) saying that the energy transfer from polystyrene to 2,5-diphenyl oxazol or anthracene does not depend on whether the luminophore molecule is chemically bound to the polystyrene molecule do not contradict the above-mentioned opinion. The energy absorbed by the aliphatic chain is transferred to the neighboring phenyl ring of polystyrene. Luminescence arises due to the intermolecular energy transfer from the phenyl ring to the luminophore. There are 1 figure, 1 table, and 8 references: 1 Soviet and 7 non-Soviet.
Card 3/4

Intramolecular transfer of energy...
32305
S/020/61/141/004/011/019
B101/B110

The four most recent references to English-language publications read as follows: Ref. 5: E. Weber, P. Forsyth, R. Schuler, Radiation Res., 3, 68 (1955); R. Schuler, J. Phys. Chem., 63, 925 (1959); A. Schapiro, J. Phys. Chem., 63, 801 (1959); P. Avivi, A. Weinreb, J. Chem. Phys., 27, 716 (1957).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

PRESENTED: July 6, 1961, by S. S. Medvedev, Academician

SUBMITTED: May 22, 1961

Legend to Table 1: (1) substance; (2) data by Schuler; (3) data by the authors; $G_{a\pi} = G_{add}$; (a) benzene; (b) toluene; (c) ethyl benzene; (d) cumene; (e) butyl benzene; (f) octyl benzene; (g) octane + benzene (1:1); (h) hexane; (i) octane; (k) note: mean values of G are given.

Card 4/54

S/844/62/000/000/009/129
D290/D307

AUTHORS: Bagdasar'yan, Kh. S., Izrailevich, N. S. and Krongauz,
V. A.

TITLE: Intramolecular migration of energy in irradiated alkyl-
benzenes

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khi-
mii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962,
70-73

TEXT: The authors measured the radical yields after the irradia-
tion of toluene, ethylbenzene, cumene, n-butylbenzene, n-octyl-
benzene, benzene, n-hexane, n-octane, and an equimolecular mixture
of benzene and n-octane with Co^{60} γ rays; iodine was used as a ra-
dical acceptor. In general, the radical yields were lower for the
alkylbenzenes than would be expected if the yields were additive;
in particular, the radical yield was much lower for octylbenzene
than for the octane-benzene mixture. From these results the pro-
babilities of intra- and intermolecular energy transfers are cal-

Card 1/2

Intramolecular migration of ...   S/844/62/000/000/009/129
D290/D307

culated, concluding that intramolecular energy transfers from the aliphatic chain to the phenyl ring are much more probable than intermolecular energy transfers between separate aliphatic chains and phenyl rings. There is 1 figure and 1 table.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute im. L. Ya. Karpov)

Card 2/2

37517

S/020/62/144/001/014/024
B119/B144

11 1265
5.4600

AUTHORS: Bagdasar'yan, Kh. S., Krongauz, V. A., and Kardash, N. S.

TITLE: The mechanism of protective action of aromatic amines in the radiolysis of polymers. The sensitized formation of ion radicals of amines

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 101 - 104

TEXT: The protective action of β-naphthyl amine, phenyl-β-naphthyl amine, diphenyl amine, and triphenyl amine against destruction of polymethyl methacrylate (molecular weight $\sim 7 \cdot 10^6$ and $\sim 10^6$) caused by γ-radiation was studied. Co^{60} was used as radiation source ($6.6 \cdot 10^{18}$ ev/liter·sec). Polymer films 100μ thick with different contents of protective agent (up to 0.2 moles/liter) were subjected to γ-radiation in vacuo at room temperature and $-196^{\circ}C$. The number G of chain ruptures was determined on the basis of the mean molecular weight of the polymer after irradiation. The content of protective agent before and after irradiation was determined spectrophotometrically after dissolution and coupling with p-nitro-benzoyl

Card 1/3

The mechanism of protective action...

diazonium. The spectra of the films irradiated at -196°C were taken at the same temperature by means of a special quartz Dewar vessel as cuvette. Results: At room temperature, the number G of chain ruptures is, in all cases, independent of the radiation dose; it depends on the amount of protective agent in the film. G is 1.7 with pure polymer; phenyl-β-naphthyl amine in amounts of 0.2 moles/liter reduces G to 0.65. Similar results were obtained with the other amines. At -196°C, G depends to a limiting value on the radiation dose. At this temperature, G = 0.8 for pure polymer, and 0.4 with 0.05 moles/liter of triphenyl amine. At low radiation doses, the consumption of phenyl-β-naphthyl amine is 1-2 molecules per 100 ev energy. On irradiation at -196°C, the films are pink, green, or blue according to the amine content. The coloring is due to the formation of ion radicals in the amines which are not immediately neutralized by electrons at this temperature. The ion radicals are formed by transfer of the energy absorbed by the substrate (polymer, in this case) to the amine. The protective action of aromatic amines is explained by these energy transfers. There are 4 figures. The most important English-language references are: L. Wall, D. Brown, J. phys. Chem., 61, 129 (1957); G. Lewis, D. Lipkin, J. Am. Chem. Soc., 64, 2801 (1942).

Card 2/3

The mechanism of protective action...

S/020/62/1+4/001/014/024
B119/B144

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

PRESENTED: November, 17, 1961, by S. S. Medvedev, Academician

SUBMITTED: November 1, 1961.

Card 3/3

S/195/63/0Q4/001/004/009
E075/E436

AUTHORS: Krongauz, V.A., Vasil'yev, I.N.

TITLE: An investigation of the processes of energy transfer
             by the methods of luminescence and radiation chemistry

PERIODICAL: Kinetika i kataliz, v.4, no.1, 1963, 67-75

TEXT: The work was carried out to verify the postulate that for
irradiated three component systems, consisting of two acceptors
dissolved in benzene, the protective action of acceptors, such as
benzoyl peroxide, is due to energy transfer from the second
acceptor to the peroxide, apart from energy transfer from the
solvent molecules to each of the acceptors.   The mechanism of
energy transfer was investigated in the system consisting of
p-terphenyl, 2,5 diphenyloxazol (luminophors) and benzoyl peroxide
dissolved in toluene.   The system was irradiated with ultraviolet
light (λ = 265 mμ) and γ-rays from a Co^{60} source.   On irradiation
with γ-rays the decomposition yield of benzoyl peroxide increased
rapidly for concentrations up to 0.01 mol/litre.   The high
initial radiation yields were due to energy transfer from the
solvent.   The yield for solutions containing $\sim$ 0.05 mole/litre
of luminophor remained constant after reaching a maximum.   Similar
Card 1/3

An investigation of the processes ...

results were obtained on irradiation with ultraviolet light. The
authors also investigated the luminescence of luminophors induced
by γ-rays and ultraviolet light ($\lambda = 290$ and 300 mμ) and quenched
by benzoyl peroxide. As the radiation with $\lambda > 290$ mμ was
absorbed only by the luminophors, the quenching effect of the
peroxide can be explained by the interaction of the benzoyl
peroxide with the excited molecules of the luminophors. The
efficiency of energy transfer from the solvent molecules (A) to
benzoyl peroxide molecules (B) - F_{AB} and that for the transfer from
the luminophor molecules (C) - F_{AC} were: $F_{AB} = 380 \pm 50$ litres/mol
for $B < 0.01$ mole/litre, $F_{AC} = 1200 \pm 600$ litres/mole for γ-ray
irradiation and 1150 ± 70 litres/mole for the ultraviolet
irradiation. The energy transfer values F_{CB} were 80 ± 20 litres/mole
for the irradiation with γ-rays and 45 ± 4 litres/mole for the
ultraviolet irradiation. These values obtained by different
methods were consistent, which confirmed the postulated mechanism
of energy transfer. Comparison of various calculated and
experimental values for the energy transfer from toluene to benzoyl
peroxide and the luminophors showed that the transfer takes place
Card 2/3

An investigation of the processes ...   S/195/63/004/001/004/009
E075/E436

as a result of long-range interaction between the molecules,
diffusion effects also being important.   The energy transfer from
the luminophors to benzoyl peroxide proceeds by a diffusion
process via the formation of a transition complex between the
excited luminophor molecules and those of benzoyl peroxide.
There are 5 figures and 1 table.

ASSOCIATION: Fiziko-khimicheskiy institut im. L.Ya.Karpova
              (Physico-chemical Institute imeni L.Ya.Karpov)

SUBMITTED: December 21, 1961

Card 3/3

L 1852-63   EPR/FTF(c)/FTT(m)/   Ps-h/Pr-l

ACCESSION NR: AP3001486   S/0195/63/004/002/0204/0207

64
62

AUTHOR: Vasil'yev, I. N.; Krongaus, V. A.

TITLE: The transfer of energy during the sensitized photolysis of benzoyl peroxide solutions

SOURCE: Kinetika i kataliz, v. 4, no. 2, 1963, 204-207

TOPIC TAGS: photo-decomposition of benzoyl peroxide, toluol, 2,5-diphenyloxazol, influence of light, radiolysis, aromatic compounds, photolysis

ABSTRACT: The sensitizing of the photodecomposition of benzoyl peroxide in toluol with the inductive light which is absorbed by the toluol has been studied. Investigation was also made with the tricomponent system benzoyl peroxide-toluol-2,5-diphenyloxazol under the influence of light absorbed by the luminophore. In the previous work it was found that during the radiolysis of aromatic compounds in dilute benzene and toluol solutions, a sensitized decomposition of these compounds caused by the energy transfer from the solvent to the solute takes place. The results obtained by photolysis for the system toluol-benzoyl peroxide where the energy transfer effect is 450 / or - 80 l/mole and the transfer of energy from the luminophore to the benzoyl is 40 / or - 10 l/mole are in good agreement

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L 10592-63
ACCESSION NR: AP3001486

2.

with the previously obtained results with radiation. This confirms the mechanism suggested earlier for the energy distribution during the radiolysis of tricomponent system of toluol-benzoyl peroxide-luminophor. "The authors express their deepest gratitude to Kh. S. Bagdasap'yan for taking part in the organization of this work and for evaluating the results." Orig. art. has: 1 table and 3 graphs.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute)

SUBMITTED: 06Jun63   DATE ACQD: 10Jun63   ENCL: 00

SUB CODE: 00   NO REF SOV: 006   OTHER: 001

Card 2/2

L 10703-63   EWP(1)/EPF(c)/EWT(1)/EWT(m)/BDS--AFFTC/ASD--Po-L/P--L--BW/RM
ACCESSION NR: AP3002023   S/0195/63/004/003/0489/0491

AUTHOR: Pshiby*lovich, Z. V.; Krongauz, V. A.; Bagdasar'yan, Kh. S.

TITLE: Study of the radiolysis of some hydrocarbons by gas chromatography and
electron paramagnetic resonance

SOURCE: Kinetika i kataliz, v. 4, no. 3, 1963, 489-491

TOPIC TAGS: radiolysis, hydrocarbons, gas chromatography, electron paramagnetic
resonance, alkyl benzenes, intramolecular energy migration, Gamma rays, n-octane,
n-octylbenzene

ABSTRACT: The purpose of this work was to verify earlier conclusions that alkyl-
benzenes are appreciably more stable to irradiation than expected when independent
radiolytic decomposition of side chain and ring is postulated. Analyses of data
obtained showed that intramoleculear energy migration is at least five times more
probable than intermolecular transfer. The main gaseous product of irradiation of
n-octane, an equimolecular mixture of octane and benzene and n-octylbenzene with
Gamma-rays from Co sup 60 was hydrogen in yield independent of dose up to 100
megarad and falling in the sequence shown. The low hydrogen yield from n-octyl-
benzene is ascribed to intermolecular migration of energy from side chain to

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L 10703-63
ACCESSION NR: AP3002023

benzene ring. From EPR spectra it is suggested the radical formed from n-octyl-
benzene has the unpaired electron on the carbon adjacent to the benzene nucleus
and that this is the site of the bond breakage. Orig. art. has:2 figures and 1
table.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical
Institute)

SUBMITTED: 10Jul62   DATE ACQ: 12Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 004   OTHER: 006

Card 2/2

ACCESSION NR: AP4035153   S/0195/64/005/002/0358/0359

AUTHORS: Krongauz, V. A.; Bagdasar'yan, Kh. S.

TITLE: Observations on a paper by Yu. A. Kolbanovskiy, A. M. Brodskiy
       and L. S. Polak on the mechanism of inhibiting radiolysis

SOURCE: Kinetika i kataliz, v. 5, no. 2, 1964, 358-359

TOPIC TAGS: radiolysis, inhibition, inhibition mechanism, energy
transfer, inhibitor concentration, benzene benzoyl peroxide phenan-
threne, benzene benzoyl peroxide anthracene, energy transfer mechanism

ABSTRACT: In the works cited (Tr. 2 Vses. soveshch. po radiatsionnoy
khimii, Izd-vo AN SSSR, M., 1962, str. 65, "All-Union Conference on
Radiation Chemistry, and Dokl. AN SSSR, 139, 1081, 1961) Kolbanovskiy
et al. discussed the inhibiting effects in the radiolysis of solu-
tions created by small amounts of inhibitors, indicating this action
was tied up with the transfer of energy from the solvent to the in-
hibitor. Examination of concentration curves (c) of additives plotted
against the inverse of radiation output of the decaying donor (1/G)
led to their conclusion that $1/G \sim C^{2/3}$. Their conclusions regarding
the mechanism of energy transfer were made on this basis. Based on
Card 1/2

ACCESSION NR: AP4035153

original work and other literature, the present authors disagreed
with Kolbanovskiy et al., indicating that $1/G = C$ is just as possi-
ble as $1/G = C^{2/3}$, and that in the benzene-benzoyl peroxide-
phenanthrene (anthracene) system the solvent benzene is the primary
donor and the energy transfer from benzoyl peroxide to the inhibitor
acceptor is merely a secondary process (Kolbanovskiy felt energy was
transferred from benzoyl peroxide donor to the phenanthrene or
anthracene acceptor). The present work indicated the mechanism of
energy transfer as related to concentration of additives requires a
more consistent approach than the one taken by Kolbanovskiy et al.
At low concentrations there is no easily determined relationship
between energy transfer and inhibitor concentration, but at higher
concentrations the relationship $1/G$ C seems to hold. Orig. art.
has: 4 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physical
          -Chemical Institute)

SUBMITTED: 07Mar63
SUB CODE: OC, NP   NR REF SOV: 008   ENCL: 00
                                                           OTHER: 002

Card 2/2

KRONGAUZ, V.A.; BAGDASAR'YAN, Kh.S.

Remarks on articles by IU.A. Kolbanovskii, A.V. Brodskii,
L.S. Polak on the mechanism of radiolysis inhibition. Kin. i
kat. 5 no.2:358-359 Mr-Ap '64.   (MIRA 17:8)

1. Fiziko-khimicheskiy institut imeni Karpova.

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KRONGAUZ, V.A.

Triplet molecules in liquid benzene. Photochemical processes
in a thin absorbing layer. Dokl. AN SSSR 155 no. 3:658-661
Mr '64.   (MIRA 17:5)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstav-
leno akademikom S.S.Medvedevym.

KRONGAUZ, V.A.

Photopolymerization mechanism of vinyl compounds. Proof of the participation of monomer molecules in the triplet state in the initiation of photopolymerization. Teoret. i eksper. khim. 1 no.1:47-54 Ja-F '65. (MIRA 18:7)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.

BERENFEL'D, V.M.; KRONGAUZ, V.A.

Effect of the substitutents separated by an aliphatic chain from the benzene ring on the optical properties of substituted benzene. Dokl. AN SSSR 162 no.6:1300-1303 Je '65.   (MIRA 18:7)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova. Submitted December 9, 1964.

ACC NR: AT5023436   SOURCE CODE: UR/0000/65/000/000/0110/0113

AUTHOR: Krongauz, V. A.; Vasil'yev, I. N.; Kirsanov, B. P.

ORG: none

TITLE: Investigation of the mechanism of intermolecular energy transfer in organic solutions. Effect of diffusion

SOURCE: Simpozium po elementarnym protsessam khimii vysokikh energiy. Moscow, 1963. Elementarnyye protsessyy khimii vysokikh energiy (Elementary processes of the chemistry of high energies); trudy simpoziuma. Moscow, 1965, 110-113

TOPIC TAGS: excited state, particle interaction, molecular interaction, particle collision, luminescence

ABSTRACT: The transfer of excitation energy between benzene and toluene, 2,5-diphenyloxazole, and 2,5-diphenyloxazole and isopropyldiphenyl and cyclohexane was studied. The dependence of the relative intensity (I) of luminescence of a diphenyloxazole solution (0.005 moles/l) in isopropyldiphenylcyclohexane mixture upon the reciprocal viscosity of the solvent is shown in figure 1. For all three systems, the experimentally determined rate constants of energy transfer k_{AB} are lower than those calculated from the formula

$$k_{AB} = 4\pi D r_1 N \left(1 + \frac{r_1}{\sqrt{D\tau_0}}\right).$$
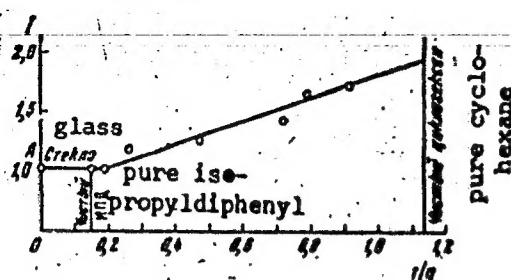
Card   1/2

L 10041-66

ACC NR: AT5023436

Fig. 1. Diphenyloxazole in a glassy isopropyldiphenyl solvent at -78°C.

where D is diffusion coefficient, r is critical radius for instantaneous intermolecular energy transfer by exchange mechanism, τ_0 is life of excited molecules. This discrepancy is probably due to deviation from the probability of resonance interaction $W(r)$ between molecules A and B as calculated from the formula

$$W(r) = \frac{1}{\tau_0}\left(\frac{r_1}{r}\right)^6,$$

where r is intermolecular distance. Orig. art. has: 1 figure, 1 table, 7 formulas.

SUB CODE: 20/   SUBM DATE: 23Feb65/   ORIG REF: 004/   OTH REF: 002

jw
Card 2/2

ACC NR: AP6015539   SOURCE CODE: UR/0379/65/001/001/0047/0054

AUTHOR: Krongauz, V. A.

ORG: Physical Chemistry Institute im. L. Ya. Karpov, Moscow (Fiziko-khimicheskiy institut)

TITLE: Mechanism of photopolymerization of vinyl compounds. Evidence of participation of the triplet state of monomeric molecules in initiating photopolymerization

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 1, no. 1, 1965, 47-54

TOPIC TAGS: photopolymerization, hydrocarbon, chemical kinetics, monomer, isomerization, luminescence

ABSTRACT: It has been established that upon irradiation of dilute solutions of trans-stilbene in benzene using light at a wave-length of 254 millimicrons, absorbed practically only by benzene, a sensitizing reaction of trans-cis-isomerization of stilbene occurs. Comparison of data on isomerization with measurements of luminescence intensity of stilbene solutions and of pure benzene solutions has afforded the conclusion that isomerization is induced by triplet-triplet transfer of energy from benzene to stilbene and singlet excited states of benzene are not involved. The concentration dependance of quantal yields of isomerization of stilbene has made it possible to estimate the lower limits of quantum yield of triplet benzene molecules ($\gamma_T \leqslant 0.25$)

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ACC NR: AP6015539

and their lifetime ($\tau \leq 10^{-6}$ second). The reaction of sensitized isomerization of stilbene is evidently a convenient means of studying triplet states forming upon action of light on organic liquids, when observation of sensitized phosphorescence is hampered due to low steady-state concentrations of triplet molecules. In this paper, this reaction was used in detecting triplet molecules forming when light acts on a vinyl monomer. To discover the nature of particles initiating photopolymerization of vinyl monomers, a comparative study is presented of the sensitizing isomerization of stilbene in methylmethacrylate and the kinetics of photopolymerization of this monomer in the presence of stilbene. Photopolymerization of the systems investigated has several interesting features. 1. Calculation of the quantum yield of polymerization initiation (β) using light at λ =254-265 millimicrons from the formula $V_0 = k_t/k_0^2$ $M(\beta I)^2$ (V_0 = rate of polymerization of the pure monomer, k_p, k_0 = rate constants of growth and rupture of kinetic chains, I = intensity of absorbed light in einsteins · second yields for β the value (1 ± 0.2) · 10^{-3}, if we take K_p/K_0^2 = 0.05 and M = 9.3 moles/liter. The value of β is almost 1/5 that of the minimum value of the quantum yield of triplet monomer molecules γ_t, determined from data on stilbene isomerization, that is, at least four of five triplet monomer molecules are deactivated, not initiating polymerization. 2. Specified is the effect of stilbene additions on the extensive polymerization of polymethylmethacrylate, obtained upon action of light at λ = 254-265 millimicrons. It is clear from the data that additions of cis-stilbene substantially reduce the extent of polymeri-

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